

# **Notice of Allowability**

Application No.

09/989,025

Applicant(s)

NAKAI, JUNICHI

Examiner

Sheridan K Snedden

Art Unit

1653

## **-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--**

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 2/5/04.
2. ☒ The allowed claim(s) is/are 60 and 64-66.
3. ☒ The drawings filed on 21 November 2001 are accepted by the Examiner.
4. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☒ All    b) ☐ Some\*    c) ☐ None    of the:
    1. ☒ Certified copies of the priority documents have been received.
    2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
    3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
  6. ☐ CORRECTED DRAWINGS ( as "replacement sheets") must be submitted.
    - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review ( PTO-948) attached
      - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_.
    - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

### **Attachment(s)**

- |  |   |
|--|---|
| 1. <input type="checkbox"/> Notice of References Cited (PTO-892)   | 5. <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)           |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                               | 6. <input type="checkbox"/> Interview Summary (PTO-413),<br>Paper No./Mail Date ____. |
| 3. <input type="checkbox"/> Information Disclosure Statements (PTO-1449 or PTO/SB/08),<br>Paper No./Mail Date ____ | 7. <input checked="" type="checkbox"/> Examiner's Amendment/Comment                   |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit<br>of Biological Material         | 8. <input type="checkbox"/> Examiner's Statement of Reasons for Allowance             |
|  | 9. <input type="checkbox"/> Other ____.   |

### EXAMINER'S AMENDMENT

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Thomas Cunningham on March 8, 2004.

2. The application has been amended as follows:

Claims 1-59 (Cancelled)

Claim 60 (Currently Amended): A nucleic acid molecule encoding an artificial biosensor protein comprising the following sequences (a) to (h) sequentially from the N terminus:

- (a) Met-Gly-Thr or Met-Val-Asp (linker X);
- (b) a partial amino acid sequence of myosin light chain kinase protein (Ser-Ser-Arg-Arg-Lys-Trp-Asn-Lys-Thr-Gly-His-Ala-Val-Arg-Ala-Ile-Gly-Arg-Leu-Ser-Ser)(SEQ ID NO: 6);
- (c) Leu-Glu (linker Y);
- (d) the amino acid sequence from the 149th to 238th position of green fluorescent protein of SEQ ID NO: 2;
- (e) Gly-Gly-Thr-Gly-Gly-Ser (linker amino acid sequence; ~~amino~~ amino acids 117 to 122 of SEQ ID NO: 8);

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(f) the amino acid sequence from the 1st ~~1st~~ to 144th position of green fluorescent protein of SEQ ID NO: 2;

(g) Gly-Thr-Arg or Thr-Arg (linker Z); and

(h) the amino acid sequence from the 2nd to 148th position of rat calmodulin protein of SEQ ID NO: 4 or the amino acid sequence from the 2<sup>nd</sup> to the 148<sup>th</sup> position of calmodulin protein mutant CaMCN, in which residues 82-148 and 9-75 of SEQ ID NO: 4 have been exchanged.

Claims 61-63 (Canceled).

Claim 64 (Currently Amended): A nucleic acid molecule encoding an artificial biosensor protein comprising the following sequences (a) to (g) sequentially from the N terminus:

(a) the amino acid sequence from the 1st ~~1st~~ to 144th position of green fluorescent protein ~~or~~ of SEQ ID NO: 2;

(b) Gly-Thr-Arg (linker A);

(c) the amino acid sequence from the 2nd to 148th position of rat calmodulin protein of SEQ ID NO: 4 ~~2~~;

(d) Gly-Thr or Gly-Thr-Gly-Ser-Gly-Gly-Gly-Sere (linker B; SEQ ID NO: 17);

(e) a partial amino acid sequence of myosin light chain kinase protein (Ser-Ser-Arg-Arg-Lys-Trp-Asn-Lys-Thr-Gly-His-Ala-Val-Arg-Ala-Ile-Gly-Arg-Leu-Ser-Ser)(SEQ ID NO: 6);

(f) Thr-Ser (linker C);

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(g) the amino acid sequence from the 149th to 238th position of green fluorescent protein of SEQ ID NO: 2.

Claim 65 (Previously Presented): A nucleic acid molecule encoding an artificial biosensor protein comprising the following sequences (a) to (h) sequentially from the N terminus:

(a) Met-Gly-Thr or Met-Val-Asp (linker X);

(b) a partial amino acid sequence of myosin light chain kinase protein (Ser-Ser-Arg-Arg-Lys-Trp-Asn-Lys-Thr-Gly-His-Ala-Val-Arg-Ala-Ile-Gly-Arg-Leu-Ser-Ser) (SEQ ID NO: 6);

(c) an amino acid sequence that is selected from the group consisting of Thr-Ser, Gly-Ser, Leu-Glu, Thr-Tyr, Thr-Asp, Thr-Cys, Thr-Phe, Thr-Met, Thr-Thr, Thr-Glu, Thr-His and Thr-Leu (linker Y);

(d) the amino acid sequence from the 149th to 238th position of green fluorescent protein of SEQ ID NO: 2;

(e) Gly-Gly-Thr-Gly-Gly-Ser (linker amino acid sequence; amino acids 117 to 122 of SEQ ID NO: 8);

(f) the amino acid sequence from the 1st to 144th position of green fluorescent protein of SEQ ID NO: 2;

(g) Gly-Thr-Arg or Thr-Arg (linker Z); and

(h) the amino acid sequence from the 2nd to 148th position of rat calmodulin protein of SEQ ID NO: 4 or the amino acid sequence from the 2nd to 148th position of calmodulin protein mutant CaMCN, in which residues 82-148 and 9-75 of SEQ ID NO: 4 have been exchanged.

Claim 66 (Currently Amended): A nucleic acid molecule encoding an artificial biosensor protein comprising the following sequences (a) to (h) sequentially from the N terminus:

(a) Met-Gly-Thr or Met-Val-Asp (linker X);

(b) a partial amino acid sequence of myosin light chain kinase protein (Ser-Ser-Arg-Arg-Lys-Trp-Asn-Lys-Thr-Gly-His-Ala-Val-Arg-Ala-Ile-Gly-Arg-Leu-Ser-Ser) [~~SEQ ID NO: 6~~]  
(SEQ ID NO: 6);

(c) an amino acid sequence that is selected from the group consisting of Thr-Ser, Gly-Ser, Leu-Glu, Thr-Tyr, Thr-Asp, Thr-Cys, Thr-Phe, Thr-Met, Thr-Thr, Thr-Glu, Thr-His and Thr-Leu (linker Y);

(d) an amino acid sequence from X-th to 238th position of green fluorescent protein of SEQ ID NO: 2 (where X is an arbitrary number from 148 to 150);

(e) Gly-Gly-Thr-Gly-Gly-Ser (linker amino acid sequence; amino acids 117 to 122 of SEQ ID NO: 8);

(f) an amino acid sequence from 1st to Y-th position of green fluorescent protein of SEQ ID NO: 2 (where Y is 140 when X is 148, Y is 144 or 147 when X is 149, or Y is 144 or 147 when X is 150);

(g) Gly-Thr-Arg or Thr-Arg (linker Z); and

(h) the amino acid sequence from the 2<sup>nd</sup> to 148<sup>th</sup> position of rat calmodulin protein of SEQ ID NO: 4 or the amino acid sequence from the 2<sup>nd</sup> to 148<sup>th</sup> position of calmodulin protein mutant CaMCN, in which residues 82-148 and 9-75 of SEQ ID NO: 4 have been exchanged.

***Conclusion***

3. Claims 60 and 64-66 are allowed.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sheridan K Snedden whose telephone number is (571) 272-0959. The examiner can normally be reached on Monday - Friday, 8:30 AM to 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Christopher Low can be reached on (571) 272-0951. The fax phone number for regular communications to the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0196.

SKS  
March 17, 2004

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KAREN COCHRANE CARLSON, PH.D  
PRIMARY EXAMINER